WHAT IS CLAIMED IS:

1. An exposing apparatus for a microlens array, comprising:

a secondary point light source generating section for converting a light beam from a light source into secondary point light sources;

a luminance adjustment section for receiving light of each secondary point light source and adjusting luminance of the light; and

a parallel light beam generating section for converting the light with adjusted luminance into a parallel light beam, and guiding the parallel light beam, via a first microlens array which is formed in advance, to a photosensitive resin layer to be a second microlens array.

2. The exposing apparatus for a microlens array as set forth in claim 1, wherein:

the secondary point light source generating section is a plurality of two-dimensionally disposed optical elements for condensing the light beam from the light source.

3. The exposing apparatus for a microlens array as set forth in claim 2, wherein:

the secondary point light source generating section is a fly-eye lens.

4. The exposing apparatus for a microlens array as set forth in claim 3, wherein:

the parallel light beam generating section is a collimator lens; and

a pitch p of lenses of the fly-eye lens satisfies $p < S \cdot fc/fm$, where S is a resolving power on the photosensitive resin layer that depends on a resolution of the photosensitive resin layer and a resolving power of the first microlens array, fc is a focal length of the collimator lens, and fm is a focal length of the first microlens array.

5. The exposing apparatus for a microlens array as set forth in claim 1, wherein:

the luminance adjustment section is a transmittance distribution mask having a transmittance distribution for a predetermined wavelength of light.

6. The exposing apparatus for a microlens array as set forth in claim 5, wherein:

the secondary point light source generating section is a fly-eye lens; and

the transmittance distribution mask is disposed in a vicinity of a posterior focal point of the fly-eye lens.

7. The exposing apparatus for a microlens array as set forth

in claim 5, wherein:

the transmittance distribution of the transmittance distribution mask is in a form of steps.

8. The exposing apparatus for a microlens array as set forth in claim 5, wherein:

the transmittance distribution of the transmittance distribution mask has transmittances of at least three levels.

9. The exposing apparatus for a microlens array as set forth in claim 5, wherein:

the transmittance distribution is such that the transmittance distribution mask has a plurality of regions respectively having distinct transmittances at a predetermined pitch in an in-plane direction of the transmittance distribution mask; and

the pitch is equal to an integer multiple of a distance between adjacent ones of the secondary point light sources.

10. The exposing apparatus for a microlens array as set forth in claim 1, wherein:

the parallel light beam generating section is a collimator lens.

11. The exposing apparatus for a microlens array as set forth in claim 10, wherein:

the collimator lens has an effective diameter Dc given by:

$Dc = 2 \cdot fc \cdot NAc + 2 \cdot fc \cdot \tan\theta i$

where fc is a focal length of the collimator lens, NAc is an effective numerical aperture of the collimator lens, and θi is a maximum incident angle of the parallel light beam incident on the first microlens array from the collimator lens.

12. The exposing apparatus for a microlens array as set forth in claim 10, wherein:

the photosensitive resin layer is disposed at a posterior focal point of the collimator lens.

13. The exposing apparatus for a microlens array as set forth in claim 10, wherein:

the parallel light beam from the collimator lens is incident on the first microlens array via an aperture member; and

when an effective numerical aperture of the collimator lens is NAc including the aperture member, and when a numerical aperture of the fly-eye lens is NAf, $NAc < NAf$ is satisfied.

14. The exposing apparatus for a microlens array as set forth in claim 13, wherein:

the aperture member is disposed in a vicinity of the photosensitive resin layer on a side of the light source.

15. The exposing apparatus for a microlens array as set forth

in claim 13, wherein:

a center of the aperture member and a center of the photosensitive resin layer lie on an optical axis of the collimator lens; and

the exposing apparatus further comprises an illuminance adjustment section between the aperture member and the first microlens array.

16. The exposing apparatus for a microlens array as set forth in claim 15, wherein:

the illuminance adjustment section has a transmittance distribution that is symmetrical with respect to the optical axis; and

the illuminance adjustment section is a filter for providing uniform illuminance for the incident light.

17. The exposing apparatus for a microlens array as set forth in claim 16, wherein:

the transmittance distribution of the filter is such that a transmittance increases from a central portion of the filter toward a peripheral portion of the filter.

18. An exposing apparatus for a microlens array as set forth in claim 1, further comprising:

a magnification conversion section between the secondary point light source generating section and the luminance adjustment

section.

19. The exposing apparatus for a microlens array as set forth in claim 18, wherein:

the magnification conversion section includes a first lens group having a positive refracting power and a second lens group having a positive refracting power;

a distance between a principal point of the first lens group and a principal point of the second lens group is equal to a sum of a focal length of the first lens group and a focal length of the second lens group; and

the exposing apparatus further comprises an aperture member, on a posterior focal point of the first lens group, for the magnification conversion section.

20. The exposing apparatus for a microlens array as set forth in claim 19, wherein:

the secondary point light source generating section is a fly-eye lens;

the luminance adjustment section is a transmittance distribution mask having such a transmittance distribution as to form a plurality of regions respectively having distinct transmittances, said plurality of regions being formed at a predetermined pitch in an in-plane direction of the transmittance distribution mask and for a predetermined wavelength of light; and

the pitch is equal to a pitch of lenses of the fly-eye lens multiplied by a magnification of the magnification conversion section.

21. The exposing apparatus for a microlens array as set forth in claim 20, wherein:

the transmittance distribution of the transmittance distribution mask is in a form of steps.

22. The exposing apparatus for a microlens array as set forth in claim 20, wherein:

the parallel light beam generating section is a collimator lens; and

the pitch p of the lenses of the fly-eye lens satisfies $p < S \cdot fc/(fm \cdot mb)$, where S is a resolving power on the photosensitive resin layer that depends on a resolution of the photosensitive resin layer and a resolving power of the first microlens array, fc is a focal length of the collimator lens, fm is a focal length of the first microlens array, and mb is the magnification of the magnification conversion section.

23. The exposing apparatus for a microlens array as set forth in claim 20, wherein:

the fly-eye lens and the transmittance distribution mask operate in conjunction with each other with respect to the

magnification conversion section.

24. The exposing apparatus for a microlens array as set forth in claim 20, wherein:

the parallel light beam generating section is a collimator lens;

the parallel light beam from the collimator lens is incident on the first microlens array via the aperture member; and

the aperture member has an opening whose size corresponds to a size of a microlens array for one chip, so as to expose a plurality of chips by a step-and-repeat method.

25. The exposing apparatus for a microlens array as set forth in claim 24, wherein:

the aperture member is disposed in a vicinity of the photosensitive resin layer on a side of the light source.

26. The exposing apparatus for a microlens array as set forth in claim 1, wherein:

the light source emits a parallel light beam.

27. An exposing method for a microlens array, comprising the steps of:

(1) converting a light beam having substantially uniform radiant intensity into secondary point light sources;

(2) adjusting a luminance of light of the secondary point light

source, so that the luminance matches a shape of the microlens array to be formed; and

(3) converting the light of the secondary point light source into a parallel light beam,

the parallel light beam passing through the microlens array to expose a photosensitive resin layer.

28. An exposing method for a microlens array as set forth in claim 27, further comprising the step of:

converting a magnification for the secondary point light source,

said step of converting a magnifaction being carried out between said step (1) and said step (2).